The damping of VFTO by integration of a damping resistor is a well proven technology. An example of GIS DS structure with DR is shown in Fig. Fig show also the switching process for both opening and closing. At the beginning of the opening operation, the moving contact starts to move and separates the main arcing contact Sm on the stationary contact side. The bus-charging current interrupts. However, re-strikes occur because of the low dielectric strength at that moment. As the distance between the two electrodes increases, the re-strike moves to the part between the arcing electrode Sr of the resistor Rds and the moving contact. At this moment, the DR is inserted in series to the re-strikes, leading to a suppression of the VFTO. The restriking repeats. In closing operation the same principle works in reversed order.

The DR has to withstand the dielectric stress during striking. The highest voltage across the resistor occurs shortly after the first pre-strike during closing operation. Therefore, it is necessary to prove the voltage withstanding and the energy absorption of the resistor in case of re-strikes between the moving contact and the arcing electrode of the resistor.

source: https://switchgearcontent.com